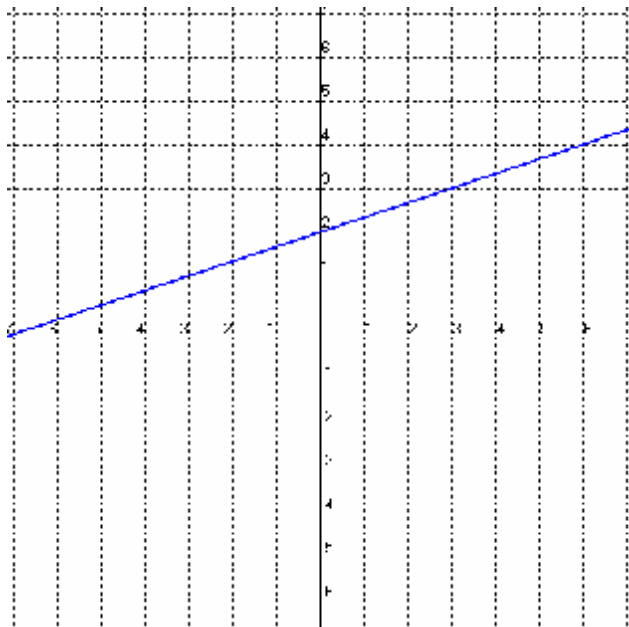

Calculus, Week 3 Homework
Due Monday 3 October 2005
Mr. Quinn

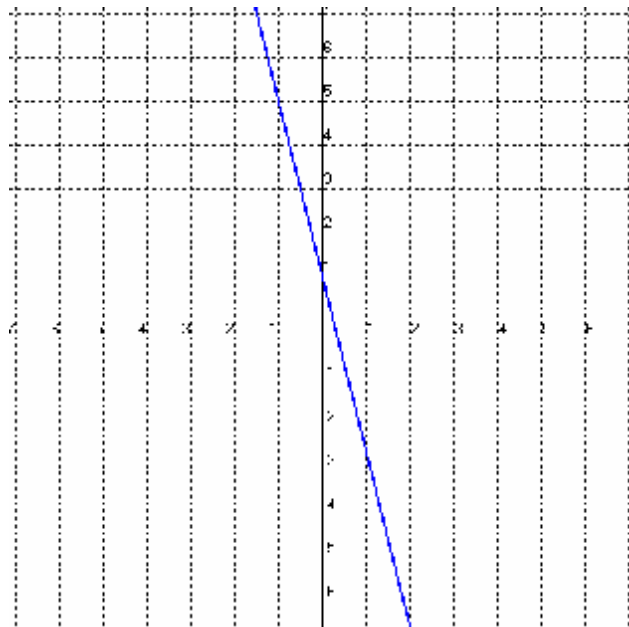
Part 1: Write linear equations describing each of these situations.

1. Passes through the points (4,4) and (9,2)
2. Has the slope -4 and passes through the point (6,6)
3. Passes through the points (-2,-3) and (7,15)
4. Has the slope $\frac{1}{2}$ and passes through the point (6,13)
5. Passes through the points (1995, 205) and (2005, 185)

6. Looks like this:



7. Looks like this:



Part 2: Answer the following questions by writing equations that describe each situation. Assume linearity.

1. My cat, Simon, is a supercat. In June, he fought 11 other cats, and in August, he fought 23. How many will he fight in December?
2. 15 guys can fight 84 monkeys, and 24 guys can fight 130. How many people will it take to fight the 1,000 Monkey Army?
3. Mr. Bowen collects puppy figurines, because he's an idiot. Over the last 3 years, he has bought 51 new ones, for a total of 656. How many will he have in 10 years?
4. Two years ago, the average age of the teachers at International was 38. This year, the average age is 31. What will the average age be in five years from now?
5. In 1960, there were 20 teams in Major League Baseball. In 2000, there were 30. How many will there be in the year 2060? *[Don't cheat – if you write an equation, x should be the actual year, like 1960 or 2000]*

Part 3: Consider this situation.

Mr. Eckert is sort of a freak, but you decide to take a job as his assistant anyway. The job is 40 hours a week, and here's how you get paid.

\$1 an hour the first week, two more than that the second week, three more than that the third week, four more than that the fourth week, etc.

I know, I know. I work with him. Believe me, this doesn't surprise me a bit. Anyway, here's a few things I'd like to see:

1. How much do you make the first week?
2. How much do you make the second week?
3. How much do you make the fifth week?
4. How much do you make the *n* th week?
5. How much *total* have you made at the end of the first week?
6. How much total have you made at the end of the second week?
7. How much total have you made at the end of the *n* th week?
8. Graph the amount that you make per hour each week.
9. Graph the amount that your hourly rate *increases* each week.
10. On a different graph, graph the amount of money you make each week.
11. Graph the total amount of money you have at the end of each week.